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DOMAIN; 1.3 OBTAINING THE PLANE WAVE SPECTRUM FROM FAR-FIELD PATTERNS AND RADIATED POWER; 1.4 PLANE WAVE SPECTRUM COMPUTATION VIA FAST FOURIER TRANSFORM; 1.5 COORDINATE TRANSFORMATIONS FOR GENERALIZED SIMULATION AND MEASUREMENT SYSTEMS; 1.6 THEORETICAL VALIDATION OF NEAR-FIELD PREDICTION; 1.7 SOME PRACTICAL EXAMPLES; REFERENCES; 2.1 FOURTH ORDER DIFFERENCES IN FDTD DISCRETE SPACE
2.2 SEAMLESS HYBRID S24/FDTD SIMULATIONS2.3 ABSORBING BOUNDARY CONDITIONS; 2.4 POINT CURRENT AND FIELD SOURCES; 2.5 PLANE WAVE SOURCES; 2.6 PEC MODELING; 2.7 ADVANCED FORMS OF HIGH-ORDER FDTD ALGORITHMS; REFERENCES; 3.1 INTRODUCTION; 3.2 FDTD CODE FOR MICROWAVE CIRCUIT SIMULATION; 3.3 FDTD CODE USING CUDA; 3.4 NUMERICAL RESULTS; REFERENCES; 4.1 INTRODUCTION; 4.2 CURRENT STATE OF THE ART; 4.3 FDTD EARTH-IONOSPHERE MODEL OVERVIEW; 4.4 NEW MAGNETIZED IONOSPHERIC PLASMA ALGORITHM; 4.5 STOCHASTIC FDTD (S-FDTD); 4.6 INPUT TO FDTD/S-FDTD EARTH-PLAMSA IONOSPHERE MODELS; 4.7 CONCLUSIONS; REFERENCES
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Sommario/riassunto

This new resource covers the latest developments in computational electromagnetic methods, with emphasis on cutting-edge applications. This book is designed to extend existing literature to the latest development in computational electromagnetic methods, which are of interest to readers in both academic and industrial areas. The topics include advanced techniques in MoM, FEM and FDTD, spectral domain method, GPU and Phi hardware acceleration, metamaterials, frequency and time domain integral equations, and statistics methods in bio-electromagnetics.

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Nota di contenuto	Cover -- Title Page -- Copyright Page -- Contents -- Preface -- Chapter 1 Introduction -- 1.1 Direct Use of CO2 -- 1.2 Chemicals from CO2 as a Feedstock -- 1.3 Application and Market Studies of CO2 Hydrogenation Products -- 1.3.1 Formic Acid/Formate -- 1.3.2 Methanol -- 1.3.3 Methanation -- 1.3.4 Energy Storage -- 1.4 Supply of Materials -- 1.4.1 CO2 Supply -- 1.4.2 Energy and H2 Supply -- 1.5 Political Aspect: Tax -- 1.6 Conclusion and Perspectives -- References -- Chapter 2 Homogeneously Catalyzed CO2 Hydrogenation to Formic Acid/Formate by Using Precious Metal Catalysts -- 2.1 Introduction -- 2.2 Ir Complexes -- 2.2.1 Ir Complexes with N,N-ligands -- 2.2.1.1 Tautomerizable N,N-ligands with OH Groups -- 2.2.1.2 N,N-ligands with NH Group -- 2.2.1.3 Tautomerizable N,N-ligands with OH and NH Groups -- 2.2.1.4 Tautomerizable N,N-ligands with Amide Group -- 2.2.2 Ir Complexes with C,N- and C,C-ligands -- 2.2.3 Ir Complexes with Pincer Ligands -- 2.3 Ru Complexes -- 2.3.1 Ru Complexes with Phosphorous Ligands -- 2.3.2 Ru Complexes with N,N- and N,O-ligands -- 2.3.3 Ru Complexes with Pincer Ligands -- 2.4 Rh Complexes -- 2.5 Summary and Conclusions -- References -- Chapter 3 Homogeneously Catalyzed CO2 Hydrogenation to Formic Acid/Formate with Non-precious Metal Catalysts -- 3.1 Introduction --

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